

REMARKS

Claims 61, 115, and 116 are being amended to more appropriately define the claimed subject matter. Claims 61, 62, 64-113, 115, 116, and 119-146 are pending in this application, of which claims 61, 101-108, 115, and 139-146 are presented for examination, and claims 62, 64-100, 109-113, 116, and 119-138 have been withdrawn from consideration.

In the Office Action mailed December 13, 2006¹, claims 61, 101, 102, 105-107, 115, 139, 140, and 143-145 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,765,950 to Nuytkens et al. ("*Nuytkens et al.*") in view of U.S. Patent No. 6,636,551 to Ikeda ("*Ikeda*"); claims 103 and 141 were rejected under § 103(a) as unpatentable over *Nuytkens et al.* in view of *Ikeda* and in further view of U.S. Patent No. 4,840,602 to Rose ("*Rose*"); and claims 104 and 142 were rejected under § 103(a) as unpatentable over *Nuytkens et al.* in view of *Ikeda*, in further view of *Rose*, and in further view of U.S. Patent No. 5,314,336 to Diamond et al. ("*Diamond et al.*").

In addition, the Examiner objected to claims 108 and 146 as dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (Office Action, pg. 8, paragraph 3).

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether or not any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Office Action.

§ 103(a) Rejection of Claims 61, 101, 102, 105-107, 115, 139, 140, and 143-145

Applicant respectfully traverses the rejection of claims 61, 101, 102, 105-107, 115, 139, 140, and 143-145 under 35 U.S.C. § 103(a) as unpatentable over *Nuytkens et al.* in view of *Ikeda*. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness under § 103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Moreover, both of these requirements must be found in the prior art, not in applicant's disclosure. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143 (8th ed., Rev. 4, October 2005).

Claims 61, 101, 102, and 105-107

Claims 61, 101, 102, and 105-107 are allowable over *Nuytkens et al.* and *Ikeda* because these references do not teach or suggest, alone or in combination, each and every element of independent claim 61, from which claims 101, 102, and 105-107 depend. For example, *Nuytkens et al.* fails to teach or suggest a toy system comprising, inter alia, "an encoder for encoding a data signal to form a spread and modulated signal," wherein the encoder comprises "a modulator operable either: a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal . . . or b) to modulate the spread signal onto at least one periodic carrier signal," as recited in claim 61.

Nuytkens et al. discloses a "video system," illustrated in Figure 1, that includes "a transmitter portion 10, a receiver portion 14 and a decoder portion 18. The transmitter portion 10 includes a video source 22 and the source of the signal to be encoded 26" (col. 6, lines 27-32). "The transmitter portion 10 also includes a code generator 30 which produces a coded signal based upon a spread spectrum technique" (col. 6, lines 43-45). "The code produced by the code generator 30 is one input to a code modulator 34. The other input to the code modulator 34 is the output of the signal source 26. The output of the code modulator 34 is one input to an adder 38 whose other input is the output of the video source 22. The output of the adder 38 is the input to a video transmitter 42 whose output is transmitted by antenna 46 or other appropriate means . . ." (col. 6, lines 48-55).

Nuytkens et al. further discloses an "audio system," illustrated in Figure 10, that includes a "transmitter 10A, receiver 14A, and decoder 18A [that] are similar to the transmitter 10, receiver 14, and decoder 18 of the video embodiment shown in FIG. 1, except that in them the video signal 22 has been replaced with an audio signal 22A, the video transmitter 42 has been replaced with an audio transmitter 42A, the TV receiver has been replaced with a radio receiver 56A, the TV screen 60 has been replaced with a speaker 60A; the encoded emissions represented as light rays in FIG. 1 have been replaced with encoded emissions represented as sound waves, and the photodiode 64 has been replaced with a microphone 170." (Col. 10, lines 46-58.)

However, superimposing, in the adder (38) of *Nuytkens et al.*, the output of the code modulator (34) onto the output of the audio source (22A) does not constitute

“modulating” a data signal onto at least one “carrier signal,” as recited in claim 61 (emphasis added). Rather, the adder (38) simply superimposes (i.e., adds) the spread signal from the output of the code modulator (34) to the audio signal from the output of the audio source (22A). Superimposing this spread signal onto this audio signal adds noise to the audio signal (see, e.g., *Nuytkens et al.*, col. 9, lines 53-67). But one of ordinary skill in the art would understand that this added noise does not “modulate” the audio signal.

One of ordinary skill in the art would understand that modulation involves modifying one or more of the amplitude, phase, or frequency of a carrier signal with another signal in order for the carrier signal to convey a message. Such modulation does not include merely superimposing a first signal onto a second signal. For the Examiner’s convenience, DUNLOP, J. & SMITH, D.G., TELECOMMUNICATIONS ENGINEERING 113-121 (Chapman and Hall 1989) (“*Dunlop et al.*”) is attached hereto. *Dunlop et al.* describes various exemplary methods of modulating data signals.

Ikeda does not make up for the deficiencies of *Nuytkens et al.* because *Ikeda* also fails to teach or suggest “a modulator operable either: a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal . . . or b) to modulate the spread signal onto at least one periodic carrier signal,” as recited in claim 61 (emphasis added).

Ikeda discloses that “duplication control information is transmitted by superimposing a spread signal in a preset superimposition/non-superimposition pattern or reversal/non-reversal pattern on a video signal” (col. 9, line 65 to col. 10, line 1).

"FIG. 3 shows the relationship between the duplication control information superimposed as spectrum spread signals on the video signal and the video signal in the form of spectrums. For example, the duplication control information indicates Never Copy, Copy Once (One Generation), No More Copy or Copy Free as stated above. The information is small in amount and is a low-bit rate, narrow-bandwidth signal as shown in FIG. 3(a)." (Col. 14, lines 14-21.)

The Examiner apparently argues that generating the narrow-bandwidth signal shown in Figure 3a of *Ikeda* constitutes "modulating" a data signal onto at least one "carrier signal" (Office Action, pg. 3, last paragraph).

However, Figure 3a of *Ikeda* simply shows the amplitude spectrum of an unmodulated (i.e., baseband) data signal. The amplitude spectrum in Figure 3a of *Ikeda* is analogous to the amplitude spectrum shown in Fig. 3.29 of *Dunlop et al.* for only the positive side of the frequency axis (i.e., without showing "negative" frequencies). As explained in *Dunlop et al.* on page 113, the amplitude spectrum of a binary signal with pulse duration 't' is given by the 'sinc' function, with most of the energy in the spectral envelope being below frequency '1/t'. "The bandwidth of the data signal is therefore usually approximated by the reciprocal of the pulse width" (*Dunlop et al.*, pg. 113, paragraph 2). Figure 3a of *Ikeda* illustrates this approximation. The data signal of *Ikeda* is the "duplication control information" and indicates "Never Copy," "Copy Once," "No More Copy," or "Copy Free" (col. 14, lines 14-19). As discussed in *Ikeda*, this duplication control information is formed by an 8 bit word (col. 10, lines 64-67). These 8 bit words have the narrow bandwidth shown in Figure 3a of *Ikeda*. The

generation of the amplitude spectrum shown in Figure 3a of *Ikeda* does not involve any “carrier signal,” as required by claim 61.

Thus, *Nuytkens et al.* and *Ikeda* fail to teach or suggest, alone or in combination, “a modulator operable either: a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal . . . or b) to modulate the spread signal onto at least one periodic carrier signal,” as recited in claim 61.

Moreover, superimposing, in the adder (38) of *Nuytkens et al.*, the spread signal from the output of the code modulator (34) onto the audio signal from the output of the audio source (22A) does not constitute modulating a data signal onto at least one “periodic carrier signal,” as recited in claim 61 (emphasis added), because the audio signal of *Nuytkens et al.* cannot be a “periodic” signal. A primary object of *Nuytkens et al.* is to hide the spread signal in the audio signal (see, e.g., col. 1, lines 46-48). *Nuytkens et al.* relies on the spread signal having an amplitude that is lower than that of the audio signal, such that the spread signal is masked by the audio signal. Since the spread signal has a relatively wide bandwidth, the audio signal must also have a wide bandwidth in order to mask the spread signal. However, periodic signals comprise a single frequency (corresponding to the reciprocal of the periodicity) if the periodic signal is a sinusoid, or harmonics thereof if the periodic signal is non-sinusoidal. If the audio signal of *Nuytkens et al.* were a periodic signal, it would not be possible to properly mask the spread signal with the audio signal because the spread signal would include frequencies not contained in the periodic audio signal and these frequencies would be audible to the human perceiving the transmission. Therefore, the audio signal of *Nuytkens et al.* cannot be a periodic signal.

Ikeda does not make up for the deficiencies of *Nuytkens et al.* because *Ikeda* also fails to teach or suggest modulating a data signal onto at least one “periodic carrier signal,” as recited in claim 61 (emphasis added). Rather, *Ikeda* discloses the simple addition of the spread signal onto a wide-bandwidth information signal, as shown in Figure 3c of *Ikeda*. Thus, *Nuytkens et al.* and *Ikeda* do not teach or suggest, alone or in combination, modulating a data signal onto at least one “periodic carrier signal,” as recited in claim 61.

Thus, since *Nuytkens et al.* and *Ikeda* fail to teach or suggest, alone or in combination, each and every element of independent claim 61, claim 61 and claims 101, 102, and 105-108, which depend therefrom, are allowable over *Nuytkens et al.* and *Ikeda*.

Claims 115, 139, 140, and 143-145

Claims 115, 139, 140, and 143-145 are allowable over *Nuytkens et al.* and *Ikeda* because these references do not teach or suggest, alone or in combination, each and every element of independent claim 115, from which claims 139, 140, and 143-145 depend. For example, *Nuytkens et al.* fails to teach or suggest a toy comprising, inter alia, “an acousto-electric transducer operable to receive and to convert an acoustic signal into an electrical signal, the acoustic signal conveying a data signal that is spread and modulated onto a periodic carrier signal,” as recited in claim 115.

For reasons substantially similar to those explained above in relation to claim 61, *Nuytkens et al.* and *Ikeda* fail to teach or suggest, alone or in combination, “a data signal that is spread and modulated onto a periodic carrier signal,” as required by claim

115 (emphasis added). Thus, since *Nuytkens et al.* and *Ikeda* fail to teach or suggest, alone or in combination, each and every element of independent claim 115, claim 115 and claims 139, 140, and 143-145, which depend therefrom, are allowable over *Nuytkens et al.* and *Ikeda*.

§ 103(a) Rejection of Claims 103 and 141

Applicant respectfully traverses the rejection of claims 103 and 141 under 35 U.S.C. § 103(a) as unpatentable over *Nuytkens et al.* in view of *Ikeda* and in further view of *Rose*.

Claim 103

The shortcomings of *Nuytkens et al.* and *Ikeda* in relation to independent claim 61 have been discussed above. *Rose* does not make up for the deficiencies of *Nuytkens et al.* and *Ikeda* because *Rose* also fails to teach or suggest a toy system comprising, inter alia, “an encoder for encoding a data signal to form a spread and modulated signal,” wherein the encoder comprises “a modulator operable either: a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal . . . or b) to modulate the spread signal onto at least one periodic carrier signal,” as recited in claim 61 (emphasis added). The Examiner relies on *Rose* only for the limitations recited in dependent claim 103.

Thus, since *Nuytkens et al.*, *Ikeda*, and *Rose* fail to teach or suggest, alone or in combination, each and every element of claim 61, claim 103 is allowable over *Nuytkens et al.*, *Ikeda*, and *Rose* at least due to its dependence from claim 61.

Claim 141

The shortcomings of *Nuytkens et al.* and *Ikeda* in relation to independent claim 115 have been discussed above. *Rose* does not make up for the deficiencies of *Nuytkens et al.* and *Ikeda* because *Rose* also fails to teach or suggest “a data signal that is spread and modulated onto a periodic carrier signal,” as required by claim 115 (emphasis added). The Examiner relies on *Rose* only for the limitations recited in dependent claim 141.

Thus, since *Nuytkens et al.*, *Ikeda*, and *Rose* fail to teach or suggest, alone or in combination, each and every element of claim 115, claim 141 is allowable over *Nuytkens et al.*, *Ikeda*, and *Rose* at least due to its dependence from claim 115.

§ 103(a) Rejection of Claims 104 and 142

Applicant respectfully traverses the rejection of claims 104 and 142 under 35 U.S.C. § 103(a) as unpatentable over *Nuytkens et al.* in view of *Ikeda*, in further view of *Rose*, and in further view of *Diamond et al.*

Claim 104

The shortcomings of *Nuytkens et al.*, *Ikeda*, and *Rose* in relation to claim 61 have been discussed above. *Diamond et al.* does not make up for the deficiencies of *Nuytkens et al.*, *Ikeda*, and *Rose* because *Diamond et al.* also fails to teach or suggest a toy system comprising, inter alia, “an encoder for encoding a data signal to form a spread and modulated signal,” wherein the encoder comprises “a modulator operable either: a) to modulate the data signal before being spread by said spreader onto at least one periodic carrier signal . . . or b) to modulate the spread signal onto at least one

periodic carrier signal," as required by claim 61. The Examiner relies on *Diamond et al.* only for the limitations recited in dependent claim 104.

Thus, since *Nuytkens et al.*, *Ikeda*, *Rose*, and *Diamond et al.* fail to teach or suggest, alone or in combination, each and every element of claim 61, claim 104 is allowable over *Nuytkens et al.*, *Ikeda*, *Rose*, and *Diamond et al.* at least due to its dependence from claim 61.

Claim 142

The shortcomings of *Nuytkens et al.*, *Ikeda*, and *Rose* in relation to independent claim 115 have been discussed above. *Diamond et al.* does not make up for the deficiencies of these references because *Diamond et al.* also fails to teach or suggest "a data signal that is spread and modulated onto a periodic carrier signal," as recited in claim 115. The Examiner relies on *Diamond et al.* only for the limitations recited in dependent claim 142.

Thus, since *Nuytkens et al.*, *Ikeda*, *Rose*, and *Diamond et al.* fail to teach or suggest, alone or in combination, each and every element of claim 115, claim 142 is allowable over *Nuytkens et al.*, *Ikeda*, *Rose*, and *Diamond et al.* at least due to its dependence from claim 115.

CONCLUSION

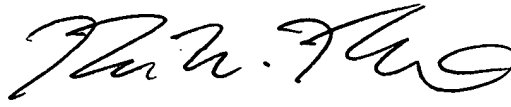
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account 06-0916.

Respectfully submitted,

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Dated: March 13, 2007

By: 
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Attachments: DUNLOP, J. & SMITH, D.G., TELECOMMUNICATIONS ENGINEERING 113-121 (Chapman and Hall 1989).